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METHOD OF USING A SURGICAL TISSUE RETRACTOR

FIELD OF THE INVENTION

The present invention relates to the field of surgery and more particularly to a retractor for use in inter alia surgery of the lower back.

BACKGROUND OF THE INVENTION

Retractors are surgical devices used to spread bodily tissues in order to allow a surgeon or surgical assistant to see and access a part of the body that is to be surgically treated. In general, retractors comprise a pair of jaws or blades that grip the bodily tissue and push it apart under the force generated by an actuator, such as a pair of scissor-like arms having a distal end and a proximal end. The proximal end generally defines a pair of handles and the distal end attaches to the pair of blades so that manipulation of the handles causes the blades to move apart from one another. Once an incision is made in the body to be operated on, the blades are inserted into the incision and the actuator is manipulated to move the blades of the retractor apart, thus spreading the tissue and providing an aperture through which the surgeon can access visualize the tissue to be surgically treated. One problem with this type of retractor is that the aperture size is generally limited by the size of the incision, meaning that a large aperture requires a relatively large incision. The drawback to this arrangement is that larger incisions result in the need for longer periods for healing of the incision. There is thus a need for a surgical retractor that is capable of creating a relatively large aperture using a relatively small incision, thereby reducing the invasiveness of the surgical procedure, post-operative healing times and patient discomfort.

SUMMARY

One embodiment comprises a system for creating an operative corridor in a human body, comprising: a probe, wherein the probe is configured to be placed through the tissues of a patient from the surface of the tissue to a location of interest; a retractor system, wherein the retractor system comprises retractor blades having an internal space, wherein the internal space is substantially the same shape as the probe such that the internal space will slip over the probe when the probe is inserted into the tissues of the patient.

Another embodiment comprises a method of accessing a spine. The method includes forming an incision in tissue; placing a probe into the incision; engaging an end of the probe with an intervertebral disc space; positioning a mating retractor blade system over the probe; sliding the mating retractor blade system down and over the length of the probe; and activating the mating retractor blade system to open the mating retractor blade system to create an operative corridor.

Another embodiment comprises a method of accessing a surgery site that includes forming an incision in tissue; placing a probe into the incision; anchoring an end of the probe at the surgery site; positioning a mating retractor blade system over the probe; sliding the mating retractor blade system down the length of the probe; and activating the mating retractor blade system to open the mating retractor blade system to create an operative corridor.

Another embodiment comprises a method of accessing a human spine that includes forming an incision in tissue; inserting an endoscope into the incision, wherein the endoscope is configured to allow safe navigation to the spine;

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sliding a mating retractor system in a close configuration over the endoscope; sliding the mating retractor system down and over at least a portion of the endoscope into the incision in tissue; and activating the mating retractor system to create an operative corridor in the tissue.

Another embodiment comprise a retractor that includes a first blade assembly comprising a first blade rotatable about a first axis, a second blade rotatable about said first axis and an adjuster in mechanical communication with the first and second blades and adapted to rotate the first and second blades relative to each other about said first axis. A second blade assembly includes at least a third blade rotatable about a second axis and optionally a fourth blade rotatable about said second axis and, when said fourth blade is present in said second blade assembly. An adjuster is in mechanical communication with the third and fourth blades and adapted to rotate the third and fourth blades relative to each other about said second axis, wherein said second axis is different from said first axis. The retractor also includes means for moving said first blade assembly relative to said second blade assembly along a third axis that is not parallel to said first and second axes, wherein the first blade assembly moves while the second blade assembly remains substantially stationary.

Another embodiment comprises a retractor that includes a first blade assembly comprising a first blade rotatable about a first axis, a fixed second blade and an adjuster in mechanical communication with the first and second blades and adapted to rotate the first and second blades relative to each other about said first axis; a second blade assembly comprising at least a third blade rotatable about a second axis wherein said second axis is different from said first axis; and wherein said first blade assembly is movable relative to said second blade assembly along a third axis that is not parallel to said first and second axes; wherein said first blade assembly is configured to detachably separate from said second blade assembly when said retractor is in an open configuration.

In certain embodiments, the retractor (surgical retractor) can comprise (a) a first blade assembly comprising a first blade rotatable about a first axis, a second blade rotatable about said first axis and an adjuster in mechanical communication with the first and second blades and adapted to rotate the first and second blades relative to each other about said first axis; (b) a second blade assembly comprising at least a third blade rotatable about a second axis and optionally a fourth blade rotatable about said second axis and, when said fourth blade is present in said second blade assembly, an adjuster in mechanical communication with the third and fourth blades and adapted to rotate the third and fourth blades relative to each other about said second axis, wherein said second axis is different from said first axis; and (c) a means for moving said first blade assembly relative to said second blade assembly along a third axis that is not parallel to said first and second axes.

INCORPORATION BY REFERENCE

All publications and patent applications mentioned in this specification are herein incorporated by reference to the same extent as if each individual publication or patent application was specifically and individually indicated to be incorporated by reference.

BRIEF DESCRIPTION OF THE DRAWINGS

The novel features of the invention are set forth with particularity in the appended claims. A better understanding of the features and advantages of the present invention will be